UDC 621.375.024

USSR

ANISIMOV, V.I., YEKIMOV, YE.S., KAPITONOV, M.V.

"Calculation of the Drift Components of a Transistor Parallel-Balance Cascade"

V sb. Elektron. tekhn. v avtomatike (Electronics in Automation -- collection of works), Moscow, vyp. 1, "Sov. Radio," 1969, pp 33-44 (from RZh-Radiotekhnika, No 2, Feb 70, Abstract No 2D128)

Translation: Calculations are presented of the relation for determining the drift of a parallel-balance cascade due to instability of the transistor parameters, power supply, and circuit resistance parameters; a comparative evaluation is made of the various drift components. The voltage and current components of the drift are analyzed separately. The dependence of these two drift components on the change of the internal resistance of the signal source with symmetric and nonsymmetric output is determined. One illustration. Eight tables. Seven references. Resume

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UDC 576.3:612.017:615.5

USSR

YABROV, A. A., YEKIMOVA, V. A., and ZEYTLENOK, N. A.

"The Effect of Dibazole on Interferon Activity", pp 62-64, Sintez Belka i Rezistentnost' Kletok, (Protein Synthesis and Cell Resistance), Leningrad, "Nauka," 1971, 104 pp

Abstract: The results of this work indicate the stimulating effect of dibazole on the antiviral activity of the interferon inducer and of interferon in a culture of chick embryonic tissue.

1/1

1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--FREE AMINO ACIDS CONTENT IN SPRING WHEAT GRAIN -U-

AUTHOR-(02)-YEKIMOVSKIY, A.P., SOMIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PITANIYA, 1970, NR 3, PP 58-62

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--WHEAT, AMINO ACID, CHROMATOGRAPHIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/2054 STEP NO--UR/0244/70/000/003/0058/0062

CIRC ACCESSION NO--AP0120697

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--230CT7(

CIRC ACCESSION NO--AP0120697

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AMINO ACIDS COMPOSITION WAS STUDIED WITH THE AID PARTITION (COLUMN) CHROMATOGRAPHY WITH SULFONATED PLOYSTERENE CATION EXCHANGE RESINS, AND TOTAL FREE AMINO ACIDS WERE DETERMINED IN THREE SPECIMENS OF HOME GROWN SPRING WHEAT (VARIETIES: "MINSKAYA", "KHARKOVSKAYA 46", "GORKOVSKAYA 20") WITH A VIEW TO CLARIFYING THE SIGNIFICANCE OF FREE AMINO ACIDS IN THE TOTAL AMINO ACID BALANCE OF RIPE WHEAT GRAIN. FREE AMINO ACIDS WERE EXTRACTED WITH 80PERCENT ETHYL ALCOHOL, FOLLOWED BY A 3 FOLD CHLOROFORM PRECIPITATION OF PROTEINS. FREE AMINO ACIDS WERE FOUND TO COMPRISE ALTOGETHER AROUND 0.03PERCEN OF AMINO ACIDS CONTAINED IN THE WHEAT GRAIN PROTEINS. FACILITY: INSTITUT PITANIYA AMN SSSR, MOSCOW.

UNCLASSIFIED

USSR

UDC: 621.391.8:519.27

YELAGIN, V. A., BELYKH, S. F., BLOKHIN, A. V.

"One of the Methods of Determining the Probability Characteristics of Instability of the Operating Point of Threshold Devices Subjected to a Signal and Noise"

Tr. Ural'sk. politekhn. in-ta (Works of the Ural Polytechnical Institute), 1970, sb. 183, pp 120-125 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A21)

Translation: A method is outlined for determining the law of distribution of the probability density for de iation of the operating point based on quantization of a signal with respect to levels. The process is treated as stationary within the limits of discreteness. The case of a signal which is a linear function of time mixed with normal noise is considered by way of example. Five illustrations, bibliography of two titles. N. S.

1/1

USSR

UDC 620.179.155

GORBUNOV, V. I., YELAGIN, V. B., and PEKARSKIY, G. Sh.

"Use of Fast Neutrons in Radiation Defectoscopy"

Moscow, Defektoskopiya, No 5, 1970, pp 53-56

Abstract: Results are presented from theoretical and experimental studies on the application of fast neutrons to defectoscopy. A defectoscope based on the use of fast neutrons is described and results are presented from testing of large thicknesses of lead and three-layered products. Evaluation of the economic effectiveness of the use of a neutron defectoscope for testing large thicknesses of lead shows that the cost of testing of one running meter is less than the cost of testing of the material with betatron defectoscopes beginning with lead thicknesses of 120 mm. A photograph of the new defectoscope, featuring strip-chart printout of results, is presented.

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USSR

Aluminum and Its Alloys

UDC 669.715

USSR

DOBATKIN, V. I., and YELAGIN, V. I.

"Deformable Aluminum Alloys for the National Economy"

Moscow, Tsvetnyye Metally, No 6, Jun 73, pp 6-12

Abstract: Aluminum alloys for general-purpose use are selected on the basis of good corrosion resistance, good weldability, and good strength properties. The A85, A7, A5, and A0 brands generally satisfy these requirements for semi-finished goods. The AMr1, AMr2, AMts, and D12 alloys, in various states of hardening, are recommended for semifinished articles of increased strength. Considering the advantages of joint alloying with magnesium and manganese, the necessity of conducting broad studies on the selection of optimum compositions of D12- and M1-type alloys is emphasized. Heat treatable Al-Mg-Si and Al-Mg-Zn alloys, hardenable on natural cooling on the press groove, are recommended for pressed profiles and tubes. The ultimate strength (up to 45 kg/mm^2) and yield limit (up to 40 kg/mm^2) of the investigated aluminum alloys can be obtained by various treatment methods. Tabulated data of corrosion resistance and strength properties can be used in selecting aluminum alloys for specific purposes. Three tables.

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USSR

UDC 669.715'5'721.539.4:621.785.6/7:539.27

ZAKHAROV, V. V., NOVIKOV, I. I., YELAGIN, V. I., LEVIN, L. I.

"Effect of the Duration of the Break between Quenching and Artificial Aging on the Structure and Mechanical Properties of Sheet Al-4.2% Zn-1.9% Mg Alloy with Different Manganese, Chromium, and Zirconium Content"

V sb. Struktura i svoysva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 53-57 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I643)

Translation: The method of measuring σ_B and $\sigma_{0,2}$ and transmission electron microscopy demonstrated that the structure and strength characteristics of Al-4.2% Zn-1.9 Mg alloy have comparatively low sensitivity to the break between the quenching and artificial aging. Small additions of Mn and Cr to this alloy and additions of Zr in solid solution weakly increase the sensitivity of the strength characteristics to the break time. The large additives of Mn and Cr which are in the form of disperse secondary intermetallides strongly increase the sensitivity of the strength characteristics of the alloy to the break between quenching and artificial aging. The method of transmission electron microscopy demonstrated that obtaining low strength characteristics in the case of a small break

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USSR

ZAKHAROV, V. V., et al., Struktura i svoyava legk. splavov, 1971, pp 53-57

time arises from a reduction in the distribution density of the particles of the hardening Z-Mg phase isolated mainly on the surface of the intermetallide of aluminum and the transition metal. 2 illustrations, 1 table, and a 6-entry bibliography.

2/2

UDC 669.716:621.745.435

USSR

YELAGIN, V. I.

"Alloying Deformable Aluminum Alloys with Transition Metals"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 51-59, resume

Translation: As the result of an analysis of experimental data of the author and other investigators on the effect of transition metals on the structure and properties of aluminum alloys, some general rules of alloying aluminum alloys with transition metals were established. The relation between the atomic structure of transition metals and their reaction character with aluminum is demonstrated. Four figures, three tables, one bibliographic reference.

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UDC 669.715'5'721'3:620.193:620.192.46

USSR

VAL'KOV, V. D., SINYAVSKIY, V. S., YELAGIN, V. I., ALESHKINA, Ye. V., DZYUBENKO, M. I., and ROZENFEL'D, I. L.

"Study of the Corrosion Cracking of Al-Zn-Mg-Cu Alloys"

V sb. Korroziya i zashchita met. (Metal Corrosion and Protection — Collection of Works), Moscow, "Nauka," 1970, pp 75-83 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1796 by authors)

Translation: A study was made of the resistance to corrosion cracking of Al-Zn-Mg-Cu alloy sheet as a function of chemical composition, heat-treatment procedures, and production process. Under low-temperature aging procedures (140°, 16 hr; 100°, 4 Hr + 160°, 8 hr) the addition of Cr to a greater extent than Zr increases resistance to corrosion cracking. The employment of a two-stage aging procedure with high temperature in the second stage (100°, 4 hr + 180°, 4-6 hr) makes it possible to obtain high resistance to corrosion cracking for alloys doped with Zr. Additions of Ti and Mn have no favorable effect on resistance to corrosion cracking. It rises with a decline in the degree of recrystallization of sheet. The production of a fibrous recrystallized structure is promoted by additions of Cr and, to a greater degree, Zr,

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USSR

VAL'KOV, V. D., et al. Korroziya i zashchita met. (Metal Corrosion and Protection -- Collection of Works), Moscow, "Nauka," 1970, pp 75-83 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1796 by authors)

as well as by a number of technological factors: high cooling rates during casting, manufacture of sheet from extruded strips, rolling after hardening (up ~50%). Four illustrations. One table. Bibliography of 26 titles.

2/2

UDC 669.716:621.789

USSR

RABINOVICH, M. Kh., and YELAGIN, V. I.

"The Problem of High-Temperature Thermomechanical Processing of Aluminum Alloys"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 21-29, resume

Translation: Possibilities of high-temperature thermomechanical processing (HTTP) of aluminum alloys are discussed. Some experimental data on the effect of HTTP on the structure and mechanical properties of the AK6, V93, and AK4-1 alloys are presented. Eight figures, five bibliographic references.

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UDC 669.71.017:539.3/5.01

USSR

YELAGIN, V. I., SINYAVSKIY, V. S., PETROVA, A. A., and VAL'KOV, V. D.

"The Effect of Methods of the Homogenization of Ingots on the Structure and Mechanical and Corrosion Properties of Semifinished Products of Alloys of the System Al-Zn-Mg"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 5-10, resume

Translation: The effect of the method of homogenization on the structure, mechanical properties, and corrosion resistance of shapes and sheets of alloy 01911 was investigated. Optimum homogenization methods are recommended. Five figures, fifteen bibliographic references.

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UDC 669.71.018.9.4

USSR

SHVETSOV, I. V., SHVETSOVA, G. B., YELAGIN, V. I., and KOLACHEV, B. A.

"Influence of Hydrogen on the Structure and Mechanical Properties of Ingots Made of AK8 Alloys"

Tr. Mosk. aviats. tekhnol. in-ta (Works of Moscow Aviation Technological Institute), 1970, vyp. 71, pp 58-66 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G238 by authors)

Translation: The authors studied the formation of primary and secondary porosity in semicontinuously cast ingots of AK8 brand alloy. The amount of primary porosity increases linearly with an increase in hydrogen content. The tendency of the alloy to form solid solutions, supersaturated relative to hydrogen, intensifies with a lessening of oxide-scale content. A supersaturated hydrogen solution in the solid alloy decomposes with the formation of secondary pores 10-15 microns in diameter. Hydrogen embrittlement develops in AK8 brand alloy with elevated hydrogen content at low rates of deformation. Six illustrations.

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UNCLASSIFIED PROCESSING DATE--30OCT70

1/2 022

TITLE--C CURVES REPRESENTING THE DECOMPOSITION OF THE SUPERSATURATED SOLID SOLUTION IN ALUMINUM ZINC MAGNESIUM ALLOYS CONTAINING TRACES OF

AUTHOR-(04)-ZAKHAROV, V.V., NOVIKOV, I.I., YELAGIN, V.I., LEVIN, L.I.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. V. U. Z., TSVETNAYA MET., 1970, (1), 110-116

DATE PUBLISHED----------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SOLID SOLUTION, ALUMINUM ALLOY, ZINC ALLOY, MAGNESIUM ALLOY, MANGANESE CONTAINING ALLOY, CHROMIUM CONTAINING ALLOY, ZIRCONIUM CONTAINING ALLOY, COPPER CONTAINING ALLOY, TRACE ANALYSIS, MICROALLOYING, BIBLIOGRAPHY, INTERMETALLIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0149/70/000/001/0110/0116

PROXY REEL/FRAME--2000/1554

CIRC ACCESSION NO--AP0125180

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 022
CIRC ACCESSION NO--AP0125180
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. TIME CURVES REPRESENTING THE DECOMPOSITION OF THE SUPERSATURATED SOLID SOLUTION IN AL,MG,ZN ALLOYS CONTG. TRACES OF MN, CR, ZR, OR CU (C CURVES) WERE PLOTTED. THE ADDITION OF MN, ZR, AND ESPECIALLY CR SHARPLY REDUCED THE STABILITY OF THE SUPERSATURATED SOLID SOLUTION OF ZN AND MG IN AL. THE TRANSITION METALS REDUCED THE STABILITY OF THE SATURATED SOLUTION AS A RESULT OF THE INITIATING ACTION OF HIGHLY DISPERSED SECONDARY INTERMETALLIC COMPOUNDS FORMED IN THE ALLOY. THE INTRODUCTION OF TRACES OF CU INTO AL,MG,ZN ALLOYS CONTG. SUCH ADDITIVES COUNTERACTED THE EFFECT.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--16OCT70

1/2 024

TITLE--DECOMPOSITION OF SUPERSATURATED SOLID SOLUTIONS IN GRANULATED ALUMINUM ALLOYS -U-

AUTHOR-(04)-DOBATKIN, V.I., YELAGIN, V.I., FEDOROV, V.M., SIZOVA, R.M.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, METALLY MAR.-APR. 1970, P. 199-205

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL DECOMPOSITION, SOLID SOLUTION, ALUMINUM ALLOY, ZIRCONIUM ALLOY, CHROMIUM ALLOY, VANADIUM ALLOY, TITANIUM ALLOY, MANGANESE ALLOY, MOLYBDENUM ALLOY, CHEMICAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0370/70/000/000/0199/0205

PROXY REEL/FRAME--1989/1395

CIRC ACCESSION NO--AP0107868

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--16OCT70

2/2 024
CIRC ACCESSION NO--AP0107868
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE DECOMPOSITION OF ANOMALOUSLY SUPERSATURATED SOLID SOLUTIONS OF GRANULATED ALUMINUM ALLOYS CONTAINING MN, CR, ZR, TI, V, AND MO. IT IS FOUND THAT MICROHARDNESS AND ELECTRICAL RESISTIVITY IN SUPERSATURATED ALUMINUM ALLOYS ARE SUBJECT TO THE SAME RULES AS DESCRIBED PREVIOUSLY BY BARICH AND KOLESNICHENKO (1960). MAXIMUM STRENGTHENING DUE TO THE AGING OF ALLOYS WITH CR AND ZR IS SHOWN TO INCREASE BY A FACTOR OF MORE THAN TWO AS COMPARED WITH NONGRANULATED ALLOYS. IT IS ALSO SHOWN THAT THE STABILITY OF SOLID SOLUTIONS INCREASES WITH INCREASING MELTING POINT OF THE ALLOYING ELEMENTS.

UNCLASSIFIED

USSR UDC 669.2:620.18+621.785

KOLACHEV, B. A., LIVANOV, V. A., and YELAGIN, V. I.

Metallovedeniye i Termicheskaya Obrabotka Tsvetnykh Metallov i Splavov (Metallurgy and Heat Treatment of Nonferrous Metals and Alloys), Izdatel'stvo Metallurgiya, Moscow, 1972, 480 pp

Translation of Annotation: The book deals with the general problems of metallurgy and heat treatment of nonferrous metals, such as aluminum, magnesium, copper, titanium, zirconium, beryllium, high-melting metals, and their alloys. Among the topics discussed are the structural and mechanical properties of nonferrous metals, as well as corrosion stability, physical properties, technology of metals and alloys, and the application of these metals in the economy. The book presents supplementary reading material for students specializing in metallurgy and can be useful to metallurgists, technologists, and engineers dealing with the application and treatment of nonferrous metals and alloys.

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KOLACHEV, B. A., et al., Metallovedeniye i Termicheskaya Obrabotka Tsvetnykh Metallov i Splavov (Metallurgy and Heat Treatment of Nonferrous Metals and Alloys), Izdatel'stvo Metallurgiya, Moscow, 1972, 480 pp

USSR

KOLACHEV, B. A., et al., Metallovedeniye i Termicheskaya Obrabotka Tsvetnykh Metallov i Splavov (Metallurgy and Heat Treatment of Nonferrous Metals and Alloys), Izdatel'stvo Metallurgiya, Moscow, 1972, 480 pp

USSR

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USSR

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USSR

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USSR

KOLACHEV, B. A., et al., Metallovedeniye i Termicheskaya Obrabotka Tsvetnykh Metallov i Splavov (Metallurgy and Heat Treatment of Nonferrous Metals and Alloys), Izdatel'stvo Metallurgiya, Moscow, 1972, 480 pp

USSR

KOLACHEV, B. A., et al., Metallovedeniye i Termicheskaya Obrabotka Tsvetnykh Metallov i Splavov (Metallurgy and Heat Treatment of Nonferrous Metals and Alloys), Izdatel'stvo Metallurgiya, Moscow, 1972, 480 pp

USSR

KOLACHEV, B. A., et al., Metallovedeniye i Termicheskaya Obrabotka Tsvetnykh Metallov i Splavov (Metallurgy and Heat Treatment of Nonferrous Metals and Alloys), Izdatel'stvo Metallurgiya, Moscow, 1972, 480 pp

USSR UDC 621.791.75.93.004.13:620.18:669.15-194

YELAGIN, V. M., Engineer, KISLYUK, F. I., Doctor of Technical Sciences

"Effect of Individual Parameters of the Argon-Arc Welding Process on the Mechanical Properties of 000Kh18N12VI Steel Joints"

Moscow, Svarochnoye proizvodstvo, No 9, 1972, pp 4-7

Abstract: A study was previously made [L. Ye. Alekin, et al., Vliyaniye rezhima avtomaticheskoy svarki alyuminiya na razmery shva, No 1, 1964; M. A. Kudryavtsev, et al., Vliyaniye rezhima argonodugovoy svarki austenitnoy stali na razmery shva, No 11, 1969] of the effect of the welding process parameters on the geometric dimensions of the welds, and a procedure was proposed for calculating the admissible deviations of the process parameters with respect to the deviations of the geometric dimensions of the weld. However, the geometric dimensions of the weld cannot serve as the only quality criterion for welding. A study has now been made of the static strength of specimens taken from the weld as the criterion for selecting the welding conditions. The distribution of the ultimate strength of the welds in the case of argon arc welding is subject to a normal law. When selecting the optimal value of the energy parameters of the welding conditions the variation coefficient of the investigated properties K_v can be used. The optimal mechanical properties (ultimate strength and elongation per unit length) under static loads are obtained for welding conditions corresponding

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USSR

YELAGIN, V. M., et al., Svarochnoye proizvodstvo, No 9, 1972, pp 4-7

to its minimum value. The admissible deviations of the energy parameters of the welding conditions from the optimal values can be defined by the Fischer criterion. The arc voltage is the most important parameter of the welding process, and deviations of the arc voltage from the fixed values have the greatest effect on the properties of the weld.

Tungsten electrode argon arc welding on the ZD10 machine with a certified precision of 0.5% was used for the experimental tests. Graphs are presented for the probability density curves of thenormal distribution of the ultimate strength of welded joints of 000Kh18N12VI steel 1 mm thick, 1Kh18N9T steel 1.35 mm thick and Kh18N10T steel 2 mm thick, the effect of the welding current on the mechanical properties of 000Kh18N12VI steel joints 1 mm and 1.5 mm thick, the effect of the welding speed on the mechanical properties of joints 1 mm thick with a welding current of 56 amps and an arc voltage of 9 volts and 1.5 mm thick with I = 80 amps and U = 9 volts, the effect of the arc voltage on the mechanical properties of joints 1 mm thick with I = 56 amps and a welding speed v_{weld} = 0.67 cm/sec and 1.5 mm thick with I = 80 amps and v_{weld} = 0.67 cm/sec, and the effect of the linear energy on the ultimate strength of the joints on varying the welding current and welding speed.

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USSR

UDC 621.791.856.3:669.245

YELAGIN, V. M., MARTYUSHOV, B. I., and KOZLOVA, G. G., Moscow

"Statistical Analysis of the Effect of the Conditions of Argon-Arc Welding on the Mechanical Properties of Joints"

Kiev, Avtomaticheskaya Svarka, No 7, Jul 72, pp 13-17

Abstract: An analysis was made of the effect of the welding method on the strength of samples of welded joints tested for static strength by tension. The results are discussed by reference to tabulated data and diagrams showing the effects of welding current, welding rate, and welding arc voltage on the mechanical properties of joints of Kh18N9T steel and Kh18N9T steel joints with Kovar (Fe-Ni-Co-Mn alloy). The strength of Kovar joints welded by the argon-arc method was found to be lower and the relative elongation higher in comparison with the deformed initial metal. Some characteristics of welded joints of Kh18N9T steel with Kovar are indicated. A method is suggested for determining the optimum parameters of the argon-arc welding method and the acceptable deviations from these parameters. It is shown that the mean square deviation of the investigated properties from their average value is the most important characteristic of quality and reliability of argon-arc-welded joints. The variation coefficient of the properties can serve as a criterion for weld quality. Six illustrations, six formulas, three tables, threee bibliographic references. 1/1

USSR UDC 621.375.8

FRIDRIKHOV, S. A., FOTIADI, A. E., and YELAGIN, V. V.

"Investigation of the Radiation Intensity of an Argon Laser With an Argon Cell Inside the Resonator"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 15, No 3, Sep 71, pp 539-542

Abstract: The authors cite the results of an experimental investigation of the radiation intensity of a continuous argon laser with an argon cell inside the resonator. They found that, depending on the argon pressure in the cell, it reveals either amplifying or absorbing properties. They also established that increasing the discharge current in the cell leads to an amplification of the observable effect (amplification and absorption) determined by the pressure. Three figures are used to graphically demonstrate their findings. Figure 1 shows the dependence of amplification and absorption on discharge current in the cell. Figure 2 shows the same dependence for intensity of laser radiation rather than for argon pressure. Figure 3 is a graphic illustration of the amplification and absorption as a function of laser radiation intensity for discharge currents in the cell. As a result of the investigation the authors established the possibility of designing an argon laser using an argon, nonlinearly absorbing cell; they found that the argon

USSR

FRIDRIKHOV, S. A., et al., Zhurnal Prikladnoy Spektroskopii, Vol 15, No 3, Sep 71, pp 539-542

atmosphere begins to exhibit absorption properties at pressures greater than 1.1 mm Hg; at pressures on the order of 1.1 mm Hg the Ar discharge in the 3 mm capillary is transparent to radiation at λ = 4880 Å, thus indicating an approximate equality of the lifetime of the 4p and 4s states of the Ar ion. The article contains 3 illustrations and 6 bibliographic entries.

2/2

1 USSR

VINOGRADOV, B. N., YELAGIN, Yu. P., Institute of Atomic Energy imeni I. V. Kurchatov

"Concerning the Question of Magic Numbers in Neutron-Rich Nuclei"

Moscow, Yadernaya Fizika, Vol 17, No 2, 1973, pp 250-257

Abstract: The discovery of magic numbers has brought about a considerable advance in nuclear theory. In this connection, the problem of magic numbers far from the valley of β-stability is of considerable interest. It is difficult to give a predetermined answer to the question of behavior of magic numbers in the region of exotic nuclei because of various factors, among which are: 1) the change in nature of the spectrum of discrete states (including the small number of free states); 2) the possible change in the size of the gap in discrete states as the distance from stable nuclei increases; 3) the similarity of the continuous spectrum for the excess nucleons in the given nucleus. The authors make a detailed study of the influence of such factors. Neutron-rich nuclei are considered, since neutrons have a stronger stabilizing effect. It is found that with increasing distance from the valley of β-stability the magic numbers of

USSR

VINOGRADOV, B. N., YELAGIN, Yu. P., Yadernaya Fizika, Vol 17, No 2, 1973, pp 250-257

neutrons remain the same, and no new ones show up. This conclusion has also been confirmed by some experimental data. For instance, in experiments on fission in studying the fine structure of mass distribution, an increased yield of nuclei with mass number of 132 has been observed. The authors thank P. E. Nemirovskiy for constructive criticism and discussion.

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USSR UDC: 669.295.5:539.43

YELAGINA, L. A., DERYAGIN, G. A., SHTOVBA, Yu. K.

"Influence of Structure on Fatigue of VT8 and VT9 alloys"

Tekhnol. Legkikh Splavov. Nauch.-Tekhn. Byul. VILSa [Light Alloy Technology. Scientific and Technical Bulletin of All-Union Institute of Light Alloys], 1973, No 2, pp 56-63 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8I484, by the authors).

Translation: The fatigue limits σ_{-1} are determined at 20 and 500° with various types of loading for bars of the alloys VT8 and VT9 with various types of structure, including the "Moire" macrostructure, not studied earlier.

1/1

Acc. Nr.: AP0042563

Ref. Code: UR0362
JPRS 50162

Measurement of Turbulent Moisture Fluxes with IR Hygrometer

(Abstract: "Measurements of Turbulent Moisture Fluxes with an Infrared Hygrometer," by L. G. Yelagina, V. I. Gorshkov and E. T. Mironenko, Institute of Physics of the Atmosphere; Moscow, Izvestiya Akademii Nauk SSSR, Fizika Atmosfery i Okeana, Vol VI, No 1, 1970, pp 92-95)

During the summer of 1968 the State Hydrological Institute made systematic measurements of moisture fluxes with an infrared hygrometer at the Valday Scientific Research Hydrological Laboratory for comparing the results with data obtained using the large-model hydraulic evaporator. The latter instrument is a precise apparatus for measuring evaporation from the earth's surface by constant weighing. The instrument's surface area is 5 m^2 and it holds a monolith of earth weighing 40 tons; weighing accuracy is 5 grams. The spectroscopic method, based on water-vapor absorption of radiation in the IR region, has advantages in comparison with other methods for measuring humidity; in particular, it is direct, inertialess and suitable for determining humidity at below-zero temperatures. On the other hand, it is difficult to use because the transmission function of water vapor in the working region of the spectrum must be measured with

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AP0042563

a great accuracy and it cannot be used in measuring relative humidities close to saturation. The results given in this paper were obtained using the water vapor absorption band at 1.9 μ. Detailed results obtained under specific circumstances are given. The distance between the compared instruments, the IR hygrometer and the large-model hydraulic evaporator, was 1.5 km. It was found that the mean daily values of the moisture fluex as registered by the two instruments were quite close.

19760540

USSR

UDC 621.396.67.001.57

MIROVITSKIY, D. I., YELAGINA, N. M., TORGOVANOV, V. A., CHERKUNOVA, G. P.

"Quantitative Analysis of Cartographic Radiation Patterns in Optical Modeling of Antennas"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1946-1950

Abstract: Photometric methods are used to analyze the photographic images of cartographic radiation patterns of antennas in the short-range, intermediate and long-range zones obtained by exposing diaphragms of various shapes (models of large antenna systems) to a coherent light beam. A photometric measurement procedure is worked out as well as a method of making the diaphragms. Evaluations obtained for antennas with circular, square and triangular apertures showed that the measurement error for the optical modeling method in long-range and short-range side lobes is ±0.5 and ±2 dB respectively. Five figures, bibliography of ten titles.

1/1

YELANSKAYA, L.G.

IPRS 5928
6-13

III-9. EFFECT OF GROWTH CONDITIONS ON THE STRUCTURE AND MECHANICAL PROPERTIES OF SINGLE INDIUM ANTIMONIDE CRYSTALS

[Article by T. G. Dubets, L. G. Yelanskaya, V. S. Ivleva, V. I. Selyanina, Moscow; Novosibirsk, III Simposium po Protsessam Rosta i Stroyeniya Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 33]

A study was made of the effect of the growth technique (zone melting and the Czochralski method) on the density of the dislocation etching holes. The effect of the container on the dislocation distribution in the zonally purified indium antimonide is demonstrated.

A study was made of the effect of the growth direction on the nature of the distribution of the etching figures in single indium antimonide crystals obtained by the Czochralski method.

The etching conditions were selected for discovering the dislocations in the (211), (511), (100), (110) planes.

An estimate was made of the inclination of the indium antimonide crystals toward brittle rupture or crack formation by the abrasive wear method.

USSR

UDC 669.046.5

KUDRIN, V. A., YELANSKIY, G. N., BABICH, V. K., MOTOV, V. I., TYURIN, Ye. I., and DANILIN, V. I

"Technology of Quality Steelmaking in Basic Martin Furnaces Under Contemporary Conditions"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys) Izd-vo "Metallurgiya," No 61, 1970, pp 66-73

Translation of Abstract: Results of investigations on the theoretical development and practical testing of a rational technology for conducting martin steelmaking under contemporary conditions are presented. 6 figures, 23 references.

1/1

TITLE--OPTIMUM LIMITS OF THE MELT DOWN CARBON CONTENT -U-

AUTHOR-(05)-YELANSKIY, G.N., KUDRIN, V.A., MOTOV, V.I., GUTNOV, R.B., TUNKOV, V.P.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(2), 123-6

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--OPEN HEARTH FURNACE, METAL MELTING, CARBON STEEL, SULFUR, PHOSPHORUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1948 STEP NO--UR/0133/70/030/002/0123/0126

CIRC ACCESSION NO--AP0115756

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203630001-4"

2/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115756

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STATISTICAL STUDY, CONFIRMED BY 75 TON EXPTL. OPEN HEARTH HEATS, SHOWED THAT A MELT DOWN C CONTENT GREATLY DIFFERENT FROM ITS CONTENT OF FINISHED STEEL IS EQUALLY HARMFUL FOR ALL TECHNOLOGICAL OPERATIONS, BE IT TOO HIGH OR TOO LOW. AN EXCESSIVE C CONTENT SPECIFIES THE LENGTH OF THE WHOLE BOILING PERIOD, INCREASES ORE CONSUMPTION AND RAISES TAPPING TEMP. WITHOUT AFFECTING THE DECARBURIZATION RATE AND S AND P CONTENT OF FINISHED STEEL. FOR 0.10-0.65PERCENT C STEELS, HEATS HAVE TO MELT WITH A C EXCESS OF 0.35-0.65PERCENT ABOVE THE FINAL.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--THE DEVELOPMENT OF OTORLARYNGOLOGICAL SERVICE RENDERED TO THE POPULATION OF THE KAZAKH SSR -U-

AUTHOR--YELANTSEV, B.V.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OTORINOLARINGOLOGII, 1970, NR 2, PP 81-88

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MEDICAL INSTITUTE, MEDICAL TRAINING, MEDICAL FACILITY, OTORLARYNGOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0632 STEP NO--UR/0607/70/000/002/0081/0088

CIRC ACCESSION NO--AP0102618

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102618

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UP TO THE GREAT OCTOBER SOCIALIST REVOLUTION IN KAZAKHSTAN THERE EXISTS NO SPECIALIZED MEDICAL AID. AT THE PRESENT TIME OTORLARYNGOLOGICAL AID IS RENDERED NOT ONLY TO REGIONAL AND DISTRICT TOWNS, BUT ALSO IN THE RURAL LOCALITY. IN KAZAKHSTAN THE NUMBER OF OTORLARYNGOLOGISTS REACHED 465 EXCEEDING THE NUMBER OF SUCH SPECIALISTS ON THE TERRITORY OF THE TSARIST RUSSIA, THIS OCCURRING AS THE RESULT OF SPECIAL EFFORTS OF PUBLIC HEALTH BODIES IN THE KAZAKH SSR. IN KAZAKHSTAN AT PRESENT THERE ARE FIVE MEDICAL INSTITUTES AND AN INSTITUTE OF POSTGRADUATE MEDICAL TRAINING. THE CHAIRS ARE HEADED BY QUALIFIED SPECIALISTS. IN KAZAKHSTAN OTORLARYNGOLOGICAL HOSPITALS AND SCIENTIFIC RESEARCH INSTITUTES OVER 30 OTORLARYNGOLOGISTS ARE ENGAGED WHO HAVE CANDIDATE AND DOCTOR OF MEDICAL SCIENCES DEGREES AND WHO HAVE UNDERGONE SPECIAL TRAINING IN KAZAKHSTAN. ONE COULD CONJECTURE THAT THE DEVELOPMENT OF OTORLARYNGOLOGY IN KAZAKHSTAN WILL TAKE GREAT STRIDES WHICH WILL FURTHER IMPROVE OUR FOREMOST SOVIET SCIENCE.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--THE DEVELOPMENT OF OTORLARYNGOLOGICAL SERVICE RENDERED TO THE POPULATION OF THE KAZAKH SSR -U-

AUTHOR--YELANTSEV, B.V.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OTORINOLARINGOLOGII, 1970, NR 2, PP 81-88

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MEDICAL INSTITUTE, MEDICAL TRAINING, MEDICAL FACILITY, OTORLARYNGOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0632 STEP NO--UR/0607/70/000/002/0081/0088

CIRC ACCESSION NO--AP0102618

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2/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102618

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UP TO THE GREAT OCTOBER SOCIALIST REVOLUTION IN KAZAKHSTAN THERE EXISTS NO SPECIALIZED MEDICAL AID. AT THE PRESENT TIME OTORLARYNGOLOGICAL AID IS RENDERED NOT ONLY TO REGIONAL AND DISTRICT TOWNS, BUT ALSO IN THE RURAL LOCALITY. IN KAZAKHSTAN THE NUMBER OF OTORLARYNGOLOGISTS REACHED 465 EXCEEDING THE NUMBER OF SUCH SPECIALISTS ON THE TERRITORY OF THE TSARIST RUSSIA, THIS OCCURRING AS THE RESULT OF SPECIAL EFFORTS OF PUBLIC HEALTH BODIES IN THE KAZAKH SSR. IN KAZAKHSTAN AT PRESENT THERE ARE FIVE MEDICAL INSTITUTES AND AN INSTITUTE OF POSTGRADUATE MEDICAL TRAINING. THE CHAIRS ARE HEADED BY QUALIFIED SPECIALISTS. IN KAZAKHSTAN OTORLARYNGOLOGICAL HOSPITALS AND SCIENTIFIC RESEARCH INSTITUTES OVER 30 OTORLARYNGOLOGISTS ARE ENGAGED WHO HAVE CANDIDATE AND DOCTOR OF MEDICAL SCIENCES DEGREES AND WHO HAVE UNDERGONE SPECIAL TRAINING IN KAZAKHSTAN. ONE COULD CONJECTURE THAT THE DEVELOPMENT OF OTORLARYNGOLOGY IN KAZAKHSTAN WILL TAKE GREAT STRIDES WHICH WILL FURTHER IMPROVE OUR FOREMOST SOVIET SCIENCE.

UNCLASSIFIED

USSR

UDC 629.78.015.4

KOROL'KOV, O. N., YELATONTSEVA, I. V.

"Approximate Method of Optimization of Structures with Honeycomb Filling"

Tr. Kuybyshev. Aviats. In-t. [Works of Kuybyshev Aviation Institute], 1971, Vol 54, pp 9-15. (Translated from Referativnyy Zhurnal Raketostroyeniye, No 1, 1972, Abstract No 1.41.168 by T. A. Ye.)

Translation: The specifics of the method suggested for determining the parameters of 3-layer plates and shells optimal from the standpoint of weight consists in that only the condition of strength of an ideally shaped structure is used in optimization. These conditions are not related to the initial irregularities and it is not necessary to assume any magnitude for them. The influence of irregularities of the actual structure on its strength is considered by introduction of correcting factor $\alpha<1$ to all strength conditions used. This factor is determined by comparing the calculated data with the results of strength testing of similar structures. 2 figs, 5 biblio refs.

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USSR

UDC 615.217.34.015.42:612.82.015.348

YELAYEV, N. R., IVANOVA, A. I., and KRYLOV, S. S., Institute of Toxicology, Leningrad

"Time Parameters of the Activation of the Synthesis of Protein and RNA in the Brain Under the Action of the Atropine-Like Substance Amisyl"

Moscow, Doklady Akademii Nauk SSSR, Vol 213, No 5, 1973, pp 1201-1202

Abstract: It has been shown in earlier work by the authors that the central M-cholinolytic amisyl (N-diethylaminoethyl ester of diphenylglycolic acid), on being administered in doses that inhibit conditioned reflexes, activates the synthesis of protein and of RNA in the brain of rats. The synthesis of membrane proteins is induced predominantly under the conditions in question. The incorporation of 2-^{14}C-uridine and 1-^{14}C-glycine into newly synthesized RNA and proteins of the brain, respectively, upon a single intraperitoneal administration to rats of amisyl in a dose of 4 mg/100 g in the work conducted in this instance indicated that the synthesis of proteins initially lagged behind that of RNA; that the maximum synthesis of both was reached 2 hrs after the administration the effect of the drug in stimulating the synthesis of RNA and proteins had completely disappeared. After a single administration of amisyl, the content of proteins synthesized under the

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203630001-4"

USSR

YELAYEV, N. R., et al., Doklady Akademii Nauk SSSR, Vol 213, No 5, 1973, pp 1201-1202

effect of this drug, as indicated by the tracer radioactivity, reached zero on the 96th hour after administration; hence, the half-life of the newly synthesized proteins was much shorter than that of brain proteins in general, which amounts to several tens of days. In experiments in which amisyl and ^{14}C-glycine were administered daily for 13 days, the content of radioactive proteins remained at the initial level reached on the first day. Apparently no tolerance to the cholinolytic developed, so that its action must lead to the formation of an excess amount of newly synthesized proteins. One may conclude that the cholinolytic inhibits (presumably indirectly) the mechanism suppressing the synthesis of some class of nerve cell proteins.

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USSR

UDC 615.217.34.015.44:576.314

YELAYEV, N. R. and SEMENOV, Ye. V.

"Effect of Central Cholinolytics on Biological Membranes"

Moscow, Voprosy Meditsinskoy Khimii, No 3, 1973, pp 294-299

Abstract: Intraperitoneal injection of rats with typical cholinolytics -- benactyzine, its analog adiphenine hydrochloride, glipin [a central M-cholinolytic] and its analog tropazine -- and 5 minutes later with 1-C^{14}-glucose resulted in almost immediate accumulation of the metabolite in the blood and brain. Addition of the cholinolytics to cerebrocortical slices and incubation of the latter with 1-C^{14}-sodium acetate had a similar but less pronounced effect on accumulation of the isotope. The rapid stimulation of metabolite transport to the tissues is attributed to functional changes in the cell membranes after interacting with the cholinolytics. The structure of the latter indicates that this interaction is due to the presence of hydrophobic groups.

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UDC 669.293:669.774.21

USSR

PAVLOV, I. M., RYMOV, V. A., SAUTIN, Yu. I., IZOTOV, V. M., KRICHEVSKIY, Ye. M., YEL'CHANINOV, V. N., and NEMTSOV, A. S.

"Some Problems in the Manufacture of Welded Pipes"

Moscow, Tsvetnyye Metally, No 3, Mar 70, pp 50-52

Abstract: The cost of seamless pipe from niobium and its alloys is high due to the low percentage of pipe fit for service (10--15%). The present study describes a more economical production technology for thin-walled pipe from a skelp. Niobium ingots alloyed with titanium and zirconium were used as the starting material. The mechanical properties of the plates and the electron-beam welding parameters are given in tabular form. The mechanical test data show that preliminary vacuum annealing of the parent metal slightly reduces the strength properties (by 12--15%) and considerably increases elongation per unit length (1.5 to twofold). The strength properties of the welds are somewhat lower than those of the parent material whereas elongation per unit length remains at the same level. Metallographic analysis revealed coarse-grained dendritic structure (for the weld area) with dark inclusions. The microhardness is the same in both the weld and parent metal and ranges from 270 to 330 kg/mm^2. The microhardness of electron-beam welds is about the same as that of argon-arc welds. Prior to

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USSR

PAVLOV, I. M., Tsvetnyye Metally, No 3, Mar 70, pp 50-52

rolling the billets were annealed at 1200°C. For 11.6-and 12-mm pipes the total deformation was 40 to 60%; for 20 mm pipes -- 33%. The pipes passed flattening tests to the point of wall contiguity. The new technology of the process makes it possible to reduce by 2 to 2.5 times the cost of the finished product, with the physicomechanical properties remaining the same.

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USSR

YEL'CHANINOV, V. D., LAVROV, M. T., OBUKHOV, N. YA., SHMAKOV, V. A.

"Pneumatic Motor"

USSR Author's Certificate No 383861 (from Otkrutiya, Izobreteniya, Promyshlennyye obraztsy, Tovarnyye znaki (Discoveries, Inventions, Industrial Models, Trademarks), No 24, 1973, page 90)

Translation: This pneumatic motor which contains inside coupling gears with satellites and a reversible disc distributor with collectors in it for supply and discharge of the working medium is distinguished by the fact that in order to increase the efficiency and decrease the size, the distributor is located at the butts of the gears, and the collectors are arranged concentrically with respect to the housing axis and are coupled to the spaces between the teeth by the air distribution holes.

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USSR

YEL'CHANINOV, V. D., LAVROV, M. T., OBUKHOV, N. YA., SHMAKOV, V. A.

"Pneumatic Motor"

USSR Author's Certificate No 383862 (from Otkrytiya, Izobreteniya, Promyshlennyye obraztsy, Tovarnyye znaki (Discoveries, Inventions, Industrial Models, Trademarks), No 24, 1973, page 90)

Translation: This is a pneumatic motor in accordance with USSR Author's Certificate No 182442 distinguished by the fact that in order to reduce the run-down time and exclude autocranking of the shaft when the supply of working medium is stopped the halfcoupling of a ball locking clutch is fitted rigidly to the shaft, the second halfcoupling of which is spring-loaded and made to move with the possibility of axial displacements and between the cover and the housing a control cavity is formed with a diaphragm in it which contacts the sliding halfcoupling at the central point.

1/1

USSR UDC: 621.396.6-181.48

BLINOV, I. G., YEL'CHANINOV, Ye. I., KRASANOV, V. G., PANKRATOV, L. M., MELEKHIN, Yu. Ya.

"The UVN-73P-1 Installation for Vacuum Application of Metal Films"

Elektron. promst'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No 1, pp 83-85 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8V290)

Translation: The paper presents the basic results of development of an industrial installation for vacuum deposition of metal films. The particulars of design of the principal functional units are considered. Experimental results are given on the operational characteristics of the installation. Resumé.

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USSR UDC 616.981.45-056.3-092.9-07:616/155.3-097.35-078

YEVGUNOVA, YE. A., and ZHURBA, M. D., State Control Institute of Medical Biological Preparations imeni L. A. Tarasevich

"The Leukocytolysis Reaction as an Indicator of Bacterial Allergy in Experimental Animals Infected With Crucella"

Moscow, Laboratornoye Delo, No 11, 1971, pp 685-687

Abstract: The possibility of using the leukocytolysis reaction to evaluate bacterial allergies in brucellosis was studied. Methods were chosen to indicate specifically an allergy in experimental animals (rabbits and guinea pigs) infected with brucellosis. Methods used were: skin test (Burnet reaction), temperature reaction to internal introduction of a specific antigen, and the leukocytolysis reaction. The guinea pigs and rabbits were simultaneously given 2 to a 4 billon cells of a 2-hr culture of Br. abortus M-104. On the 30th day blood was drawn from the animals, a skin test was done, and the temperature reaction to internal introduction of 35 millioncells of killed therapeutic brucellosis vaccine (10 million cells in 0.2 ml) was studied. The leukocytolysis reaction was conducted with blood taken from the animals infected with brucellae and citrated. The leukocytolysis reaction was conducted with the same antigens and the blood of the noninfected control animals. After careful mixing, the 1/2

USSR

YEL'CHINOVA, YE. A., and ZHURBA, M. D., Laboratornoye Delo, No 11, 1971, pp 685-687

reaction was incubated for 2 hours at 37° C. The quantity of leukocytes in the mixture was calculated before and after incubation. In the blood of infected animals the average percent of leukocytolysis for 90% of the rabbits was 40.7% to 43.8% and for 100 percent of guinea pigs, 36.2% to 39.7%. Nonspecific lysis with physuological saline was observed in 4% - 10% of the animals. In controls, a positive reaction after contact with the antigen was observed in only 26% of the cases and the leukocytolysis was 4% - 23%. Results of skin allergy tests, temperature reactions, and the leukosytolysis reaction agreed in most cases. The leukocytolysis reaction is distinguished by its safety and simplificity and is a sufficiently reliable index of infectious allergy. The leukocytolysis reaction is recommended for further study in clinical conditions with various forms of human brucellosis.

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USSR UDC 616.981-42-092.9-085.371-097

YEL'CHINOVA, Ye. A., and ZHURBA, M. D., State Control Institute for Medical and Biological Preparations imeni L. A. Tarasevich, Moscow

"Immunological Shifts in Brucella-Infected Animals After Application of Vaccine Therapy"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 48, No 2, Feb 71, pp 75-80

Abstract: Stimulation of antibody formation in rabbits infected with Brucella and treated with corpuscular therapeutic vaccine (a suspension of Brucella cells killed by heating) or one of four soluble antigenic preparations (White antigen, "cellophane" antigen, brucellin, or purified brucellosis allergen) was studied. As far as stimulation of immunity in infected animals was concerned, the soluble antigens were no less effective than corpuscular therapeutic vaccine. The immunological response of infected animals to therapy depended not so much on the nature of the preparation used as on the readiness of the organism for

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USSR

YEL'CHINOVA, Ye. A. and ZHURBA, M. D., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 48, No 2, Feb 71, pp 75-80

antibody formation (the "immunological memory"). The soluble antigens had a lower allergenic effect than corpuscular vaccine. Therapy with the preparations studied, besides stimulating the formation of antibodies, increased the phagocytic activity of the serum. Rabbit immune sera had a bacteriostatic effect with respect to Br. abortus M-104, which was used to infect the animals in the experiments conducted. Normal rabbit sera also exhibited this effect. The bactericidal effect of immune sera with respect to Brucella was low -- lower than that of normal rabbit serum. Apparently infection with Brucella lowered the defensive potential of the organism as far as bactericidal properties of the serum were concerned.

2/2

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ROTATIONAL CONSTANTS OF ISOPROPYL ALCOHOL IN THE TRANS CONFORMATION -U-

AUTHOR-(03)-IMANOV, L.M., ABDURAKHMANOV, A.A., YELCHIYEV, M.N.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(2), 251-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MICROWAVE SPECTROSCOPY, PROPANOL, ROTATIONAL SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0810 STEP NO--UR/0051/70/028/002/0251/0253

CIRC ACCESSION NO--AP0119717

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119717

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ABOUT 1000 LINES WERE IDENTIFIED IN THE MICROWAVE SPECTRUM (11.8-31.4 GHZ) OF GASEOUS ISO,PROH, MEASURED AT MINUS 50DEGREES AND 10 PRIMENEGATIVE3-10 PRIMENEGATIVE2 MM. THE PREFERRED ROTAMER OF IOS, PROH IS THE TRANS FORM WITH THE OH IN THE SYMMETRY PLANE.

UNCLASSIFIED

USSR

BABAYEVA, A. Kh.; SULTANOV, F. F.; SEREBRYAKOV, Ye. P.; TODRIS, I. I.; STEFANOVSKAYA, N. V.; YeLDASHEV, A. Ye.

Ashkhabad, Voprosy fiziologicheskikh mekhanizmov adaptatsii organizma k zharkomu klimatu, (Aspects of the Physiological Mechanisms of Adaptation of the Organism to a Warm Climate), "Ylym," 1970, 172 pp

Translation:

Table of Contents

1/2

USSR

BABAYEVA, A. Kh., et al, Voprosy fiziologicheskikh mekhanizmov adaptatsii organizma k zharkomu klimatu, "Ylym," 1970, 172 pp

2/2

Measuring, Testing, Calibrating

USSR

UDC 621.317.757:681.327.2

GOLENISHCHEV, I. A., YELDASHEV, V. V., and MAMONOV, Ye. I.

"Arrangement for the Derivation of Information From Multichannel Analyzers"

Tr. VNII Radiats. Tekhn. [Works of the All-Union Scientific Research Institute of Radiation Technology], 1972, No 7, pp 188-195 (from Referativnyy Zhurnal, No 11, Nov 72. 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 11.32.54)

Translation: The arrangement for derivation of information from a multichannel analyzer makes it possible to set free the "memory" of the pulse analyzer (derivation of 1024 channels takes approximately 45 sec when using the PL-150 punched tape) and to carry out the processing of information with the help of a digital computer. Besides that, the described arrangement can enter into the measuring complex in the capacity of additional channel of information derivation. An experimental model of such arrangement was adjusted and has passed laboratory tests in the system of direct information transmission in digital computer. The characteristic of information carrier, the block diagram, and the design of the arrangement are presented. Four illustrations, one table, six bibliographical references.

1/1

USSR

UDC 615.916:546

AYTBAYEV, T. KH., YELEBEKOVA, R. S.

"Functional State of the Liver of Rats Under the Joint and Separate Effects of Hydrogen Fluoride and Sulfur Anhydride"

Tr. NII krayev. patol. KazSSR (Works of the Scientific Research Institute of Marginal Pathology of the Kazakh SSSR), 1972, No 23, pp 104-106 (from RZh--Farmakologiya. Khimioterapevticheskiye Sredstva. Toksikologiya, No 3, Mar 73, Abstract No 3.54.685)

Translation: Male and female rats were subjected for four months to inhalation poisoning (six hours a day, six times a week) with HF in a concentration equal to the MPC (first group) and 0.5 of the MPC (second group), SL_2 in a concentration equal to the MPC (third group) and HF+SC_2 in a concentration equal to the MPC (fourth group) or 0.5 MPC (fifth group). The increase in body weight of the animals in the control group was 72 percent of the background; in the first group it was 17 percent; in the third group 44 percent; in the fourth group 52 percent and in the fifth group, 45 percent. The glycogen content in the liver of the animals in the first group was 0.96; in the second group, 1.54; in the third

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USSR

AYTBAYEV, T. KH., YELEBEKOVA, R. S., Tr. NII krayev. patol. KazSSR, 1972, No 23, pp 104=106

group, 0.37; in the fourth group, 1.7 and in the fifth group, 1.63 g% (in the control it was 3.36 g%). The separation of hippuric acid with the urea was increased in the animals of the third and fourth groups. For the animals in the first and second groups, an increase in the lipid content in the liver was noted. The selective effect of HF on the general state of the animals and SO_2, on the antitoxic and carbohydrate function of the liver and the toxicity under the combined effect of both compounds on the MPC level are noted.

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Veterinary Medicine

USSR

UDC 576.858.095.38:598.2

VORONIN, Ye. S., DZAGUROV, S. G., SMIRNOVA, N. Ye., MOROZOV, K. V., and YELEKOYEV, K. A., State Control Institute of Medical Biological Preparations imeni L. A. Tarasevich, Moscow

"Serological Examination of Some Species of Wild and Domestic Birds in Regard to the Spread of Infectious and Oncogenic Avian Viruses"

Moscow, Voprosy Virusologii, No 2, Mar/Apr 70, pp 213-217

Abstract: Serological examination of serum specimens from some species of domestic and wild birds was carried out in order to determine the presence of antibodies to some oncogenic and infectious avian viruses. A wide prevalence to the leukemia group of viruses was found in all strains and breeds of fowl examined. Examination of sera from Japanese quail from Khosta and Maykop farms revealed no antibodies either to infectious or to oncogenic avian viruses. Survey of Japanese quail farms in close proximity to chicken farms established the circulation of agents from the avian leukemia group.

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1/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--SEROLOGICAL EXAMINATIONS OF SOME SPECIES OF WILD AND DOMESTIC BIRDS FOR PREVALENCE OF INFECTIOUS AND ONCOGENIC AVIAN VIRUSES -U-

AUTHOR-(05)-VORONIN, YE.S., DZAGUROV, S.G., SMIRNOVA, N.YE., MOROZOV, K.V., YELEKOYEV, K.A.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 213-217

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIRD, SEROLOGIC TEST, VIRUS, ANTIBODY, LEUKEMIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0736 STEP NO--UR/0402/70/000/002/0213/0217

CIRC ACCESSION NO--AP0108942

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70

IRC ACCESSION NO--AP0108942

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SEROLOGICAL EXAMINATION OF SERUM SPECIMENTS FROM SOME SPECIES OF DOMESTIC AND WILD BIRDS WAS CARRIED OUT IN ORDER TO DETERMINE THE PRESENCE OF ANTIBODY FOR SOME ONCOGENIC AND INFECTIOUS AVIAN VIRUSES. WIDE PREVALENCE OF LEUKEMIA GROUP OF VIRUSES WAS ESTABLISHED IN ALL THE STRAINS AND BREEDS OF CHICKEN EXAMINED. EXAMINATION OF SERA FROM JAPANESE QUAIL FROM KHOSTA AND MAIKOP FARMS REVEALED NO ANTIBODY EITHER TO INFECTIOUS OR TO ONCOGENIC VIRUSES OF BIRDS. SURVEY OF JAPANESE QUAIL FARMS CLOSELY CONTACTING WITH CHICKEN FARMS ESTABLISHED CIRCULATION OF AGENTS FROM AVIAN LEUKEMIA GROUP.

USSR UDC [546.193:547.475.2]:543.253

YELENKOVA, N. G., TSONEVA, R. A., and DZHIMBIZOVA, D., Superior Chemical and Technological In-titute of Bulgaria, Sofiya

"Polarographic Study of the Arsenic (III) - Ascorbic Acid System"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, Vyp 3, 1972, pp 681-685

Abstract: Ascorbic acid (H_2L) forms complexes with a series of metal ions. Because As(III) forms a polarographically active complex with H_2L, it is necessary to analyze for H_2L only in a buffered solution. As(III) was determined by polarography during the reduction of Se^{+4} to Se^0. The composition of the H_2L complex with As(III) has the form $As(OH)_2HL$. The linearity and slope (the latter approximately one) of the pH vs log α (where $\alpha = \frac{[AsL]}{c'_{As}c'_L}$, the apparent dissociation constant) plot indicate that only one complex was formed. The stability constant β was determined from the equation $H_2L + As(OH)_3 \rightleftarrows As(OH)_2H_mL + (2-m)H^+ + OH^-$ and values of log β are numerically equal to 18.84 ± 0.11 and 18.63 ± 0.53.

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1/2 039 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--LIQUID PHASE MASS TRANSFER IN A TURBULENT CONTACT ABSORBER -U-

AUTHOR-(02)-YELENKOV, D., KOSEV, A.

COUNTRY OF INFO--USSR

SOURCE--TEOR. OSN. KHIM. TEKHNOL. 1970, 4(1), 110-15

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--MASS TRANSFER, GAS ABSORPTION, OXYGEN, WATER, GAS FLOW, DIFFUSION COEFFICIENT, REYNOLDS NUMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0125 STEP NO--UR/0455/70/004/001/0110/0115

CIRC ACCESSION NO--AP0103805

UNCLASSIFIED

2/2 039 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0103805

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MASS TRANSFER OF A GAS (O) FROM A LIQ. (H SUB2 O) WAS STUDIED IN A TURBULENT CONTACT ABSORBER. A CROSS SECTIONAL DIAGRAM OF THE ABSORBER AND ITS MODE OF OPERATION ARE PRESENTED. THE ABSORBER CONTAINED A TERNARY SYSTEM COMPOSED OF O, H SUB2 O, AND HOLLOW POLYSTYRENE SPHERES, SOLID POLYPROPYLENE SPHERES, AND SOLID ROSIN PARAFFIN SPHERES 17-18 MM IN DIAM. THE MASS TRANSFER COEFF. (K SUBTS) WAS A LINEAR FUNCTION OF THE GAS FLOW RATE UNTIL IT REACHED A CERTAIN MAX. THE INCREASE IN K SUBTS WITH THE GAS FLOW RATE WAS ATTRIBUTED TO AN INCREASED AMT. OF RETAINED LIP. AND HIGHER TURBULENT FLOW. K SUBTS KEPENDED ON THE D. OF THE PACKING. AN EQUATION WAS DERIVED FOR CALCG. THE NO. OF LIQ. TRANSFER UNITS IN TERMS OF THE DIFFUSION COEFF., SCHMIDT NO., AND REYNOLDS NO. FACILITY: VYSSH. KHIM. TEKHNOL. INST., SOFIA, BULG.

UNCLASSIFIED

USSR

YELEONSKIY, V. M.; OGANES'YANTS, L. G.; SILIN, V. P. (Lebedev Physics Institute, USSR Academy of Sciences)

"Three-Dimensional Vector Field Structure in Self-Focussing Waveguides"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; August, 1972; pp 532-9

ABSTRACT: It is shown that if account is made for the real vector nature of an electromagnetic field, the equations of nonlinear electrodynamics lead to new self-focussing waveguide solutions. This opens up the possibility of the existence of self-focussing waveguides in which the transverse and longitudinal field strengths are of the same order of magnitude. As particular cases the set of self-focussing waveguides which is characterized by an unusual type of polarized structure of the electrical field includes the TE- and TM-modes previously studied. For a plane geometry a qualitative analysis of the nonlinear electrodynamics equations yields a classification of states of vector self-focussing waveguides. It is shown that under certain conditions in a nonlinear

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YELEONSKIY, V. M., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; August, 1972; pp 532-9

medium a pecular type of phenomenon arises: vis, spatial stratification of the electromagnetic field into "nearly" self-focussing regions of TE- and TM-mode fields. Characteristically, the change in space of the "nearly" self-focussing field mode is due to nonlinear interaction at weak field strengths.

The article includes 13 equations and 5 figures. There are 7 references.

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USSR

SILIN, V. P., and YELEONSKIY, V. M. (Lebedev Physics Institute, USSR Academy of Sciences)

"Nonlinear Theory of Penetration of a Conductor by p-Polarized Waves"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, May 1971, pp 1927-1937

Abstract: Solutions are obtained for the internal and external electrodynamics problems which arise on analysis of the reflection of obliquely incident p-polarized waves (waves with the electrical vector in the plane of incidence) from a medium with nonlinear dielectric permeability. It is shown that in the absence of an energy flux into a nondissipative medium, reflection of p-polarized waves may occur not only under conditions of electromagnetic fields' vanishing within the medium but also under conditions of periodic fluxless field distributions. For almost normal wave incidence the medium becomes stratified into regions in which the electromagnetic field is transverse and, at the same time, regions in which a longitudinal field exists. The condition of nonlinear transparency with respect to longitudinal waves is satisfied in the latter regions, and spatial

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SILIN, V. P., and YELEONSKIY, V. M., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, May 1971, pp 1927-1937

transformation of transverse and longitudinal electromagnetic fields occurs in them.

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USSR

YELEONSKIY, V. M., and SILIN, V. P., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Self-Focusing of a Vector Field"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13, No 3, 5 Feb 71, pp 167-170

Abstract: Self-focused or self-channeling field distributions were first discussed in 1958 by Volkov, who showed in studying a plasma that there may exist magnetic field distributions localized in space due to the nonlinear action of the field on the medium. The nonlinear solution of the field equations found by Volkov were for the case of a scalar field. In this article it is shown that self-focused field distributions also exist for TM-waves when there are two components of the electrical field (the vector case). Such distributions were found to differ qualitatively from the scalar field case. The presence of a small parameter k_z in the field equations reduces the maximum value of the self-focused field by $\sqrt{2}$, as compared with the solution of scalar field theory. In the case of a spatially periodic solution, the regions of the transverse field alternate with regions in which a longitudinal field occurs. The electrical field vector then rotates.
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USSR

UDC 547.26'118

YELEPINA, L. T., BALAKHONTSEVA, V. N., and NIFANT'YEV, E. Ye., Moscow State University Imeni M. V. Lomonosov, and All Union Scientific Research Institute of the Biosynthesis of Protein Substances

"Phosphorylation of Xylitol With Phosphonous Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, pp 1811-1816

Abstract: Reaction of xylitol with phosphonous acids and their esters yielded only 1,4-anhydroxylitol phosphonites, while the hexitols produced noncyclic hexitol phosphonites and phosphonites of their anhydrides. On storage the noncyclic phosphonites of pentitols and hexitols are cyclized forming monoanhydrides and phosphonous acid. Hexitol phosphonites are more stable than xylitol phosphonites. Phosphorylation of polyols occurs in three stages: phosphorylation of the starting polyol, cyclization of the phosphorylated polyol to 1,4-anhydride and phosphorylation of the anhydride.

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USSR

UDC 547.26'118

NIFANT'YEV, E. Ye., YELEPINA, L. T., and BALAKHONTSEVA, V. N., Moscow State University Imeni M. V. Lomonosov and All Union Scientific Research Institute of the Biosynthesis of Protein Substances

"Oxidative Intramolecular Phosphorylation of Xylitane Phosphonites"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 946-947

Abstract: On storage the xylitane phosphonite undergoes oxidative-reductive intramolecular phosphorylation forming xylitane cyclophosphonate. The isolated 3,5-cyclononylphosphonate of xylitane, m.p. 114° was also synthesized by an independent synthesis.

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USSR

UDC 547.26'118

NIFANT'YEV, E. YE., YELEPINA, L. T., BAIAKHONTSEVA, V. N., Moscow State University imeni M. V. Lomonosov; All-Union Scientific Research Institute of Biosynthesis of Protein Substances

"Phosphorylation of Xylitol with Phosphonous Acids and Their Monoesters"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 7, Jul 72, pp 1480-1485

Abstract: The paper presents the first results of a systematic study of phosphites and phosphonites of pentitols. Xylitol was phosphorylated with phosphonous acids and their acid esters. It was found that heating xylitol with alkyl phosphonous acids and their monoesters yields 5-alkyl phosphonites of the polyhydric alcohol. These phosphonites are readily hydrolyzed by bases, and undergo disproportionation. A method was developed for isolating the individual alkylphosphonous acids.

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Organometallic Compounds

USSR

UDC 547.26'118

NIFANT'YEV, E. Ye., YELEPINA, L. T., and BALAKHONTSEVA, V. N., Moscow State University imeni M. V. Lomonsov

"Phosphorylation of Xylitol"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 707-708

Abstract: Reaction of xylitol with phosphorous, hypophosphorous, and phosphonous acids is a complex reaction accompanied by dehydration of xylitol: xylitane is formed under all temperature conditions studied, at 80° a small yield of xylite phosphonites is obtained, and at higher temperatures high yields of xylitane phosphonites are obtained. Xylitane phosphonites disproportionate on storage giving xylitane diphosphonites and xylitane.

USSR UDC 541.49:(546.799.5+546.799.6+546.658)

YELESIN, A. A., ZAITSEV, A. A., KAZAKOVA, S. S., and YAKOVLEV, G. N.

"Complex Formation of Trivalent Americium, Curium, and Promethium Ions With Phosphonoacetic Acid"

Leningrad, Radiokhimiya, Vol 14, No 4, 1972, pp 541-545

Abstract: Dissociation constants were determined for phosphonoacetic acid [PAA] at 25°C and an ionic strength of 0.2 (NH_4ClO_4). By means of the ion exchange method on a cation exchange resin, complex formation of Am^{3+}, Cu^{3+} and Pm^{3+} with PAA was investigated. It was shown that in the $1 \cdot 10^{-3}$ -- $1 \cdot 10^{-1}$M concentration range of PAA and at pH 2, 3, and 4 all trivalent americium, curium and promethium ions form complexes of the composition $[M(H_2A)]^{2+}$, $[M(HA)]^{+}$ and $[M(HA)_2]^{-}$. Stability constants for these complexes were determined and compared to respective complexes with acetate, phosphate, and methylphosphonic acid ions. The stability of the complexes with single charge PAA anion is similar to the stability of analogous complexes with methylphosphinic acid. Doubly charged ion complexes $[M(HA)]^{+}$ are practically equal in their stability to the acetate complexes $[M(A)_2]^{+}$

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USSR

UDC 541.49:546.79

YELESIN, A. A., ZAITSEV, A. A., IVANOVICH, N. A., KARASEVA, V. A., and YAKOVLEV, G. N.

"Complex Formation of Trivalent Americium, Curium, and Promethium Ions with Hydroxymethylphosphonic Acid and Hydroxymethylethylphosphinic Acid"

Leningrad, Radiokhimiya, Vol 14, No 4, 1972, pp 546-551

Abstract: Dissociation constants of hydroxymethylphosphonic acid [HMPA] and hydroxymethylethylphosphinic acid [HMEPA] were determined at 25°C; it was found that in their strength these acids are close to phosphonic acid. Using the ion exchange method on a cation exchange resin, the complex formation of Am^{3+}, Cu^{3+} and Pm^{3+} with HMPA and HMEPA was studied. HMPA forms two complexes: $[M(HA)]^{2+}$ and $[M(HA)_2]^{+}$, while HMEPA is capable of only one complex formation of the $[MA]^{2+}$ type. It was shown that no additional binding between the metal ions and hydroxy groups of these acids takes place.

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USSR UDC 541.183+541.49

YELESIN, A. A., and ZAYTSEV, A. A.

"Ion-Exchange Behavior of Trivalent Am, Cm, Cf and Other Elements in the System with Nitrilotriacetic Acid"

Leningrad, Radiokhimiya, Vol XIV, No 5, 1972, pp 731-738

Abstract: Direct experiments were performed to separate americium and curium in order to evaluate the real difference in the stability constants and, in addition, to try to evaluate the relative position of the americium and curium and rare earth metals for which promethium was also added to the separated mixture. Subsequent experiments were performed in which the class of elements was expanded and californium, europium and other elements were also used in the experiments. The ion exchange behavior of Am^{3+}, Cm^{3+}, Cf^{3+}, Pm^{3+} and the other elements in a system with nitrilotriacetic acid was investigated and on the basis of the separation data corrections were introduced into the values of the stability constants of the complexes for matching with the results of potentiometric measurements.

The separation factor of the curium-americium pair is 1.3, and that of the curium-promethium pair, 2.2. For the ratio of concentrations of nitrilotriacetic acid and α-oxyisobutyric acid used in the experiments, 1/2

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YELESIN, A. A., and ZAYTSEV, A. A., Radiokhimiya, Vol XIV, No 5, 1972, pp 731-738

the process is determined by the complexion, and the role of the α-oxyisobutyrate reduces to creating the necessary buffering os the solutions. In an α-oxyisobutyrate environment, europium is washed out between californium and curium, but in the presence of nitrolotriacetic acid it follows with curium which indicates the closeness of the complex-formation constants. In accordance with the stability constant yttrium should wash out together with or close to europium, but in practice it precedes europoim. This is explained by the fact that the yttrium exchange constant between the resonance solution is less than that of europium.

The following values of the stability constants of the complexes are used to explain the results of the ion exchange separations:

Eu --$\lg\beta_1$ = 11.51, $\lg\beta_2$ = 20.76;

Cm --$\lg\beta_1$ = 11.6 $\lg\beta_2$ = 20176;

Am --$\lg\beta_1$ = 11.5, $\lg\beta_2$ = 20.65;

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Pm --$\lg\beta_1$ = 11.4, $\lg\beta_2$ = 20.42.

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UDC: 541.49:546.799.3

YELESIN, A. A., ZAYTSEV, A. A., KARASEVA, V. A., NAZAROVA, I. I., PETUKHOVA, I. V.

"Synthesis of (Methyl Phenyl Phosphonyl) Methyl Phenyl Phosphonic Acid, and an Investigation of Complexing With Trivalent Ions of Americium, Curium and Promethium"

Leningrad, Radiokhimiya, Vol 14, No 3, 1972, pp 374-377

Abstract: The authors studied complexing of trivalent Am, Cm and Pm ions with an organophosphorus compound containing two P=O groups joined by a methyl bridge. This compound, (methylphenylphosphonyl)methylphenylphosphonic acid, was synthesized. The thermodynamic value of its dissociation constant was determined ($pK^0 = 2.04$). Complexing was studied by the ion-exchange method on KU-2 cation-exchange resin. The logarithms of the constants of stability for complexes of Am^{3+}, Cm^{3+} and Pm^{3+} in solutions with constant ionic strength of 0.2 (NH_4ClO_4) were 3.35, 3.35 and 3.40 respectively, which is appreciably higher than the corresponding values with phosphoric and methylphosphonic acids, and approaches the value of the constants with trimetaphosphoric acid. The additional stabilization of these complexes was attributed to the chelate effect associated with ring closure.
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USSR

UDC 533.933

BYKOVSKIY, YU. A., DEGTYAREV, V. G., DEGTYARENKO, N. N., YELESIN, V. F, LAPTEV, I. D., NEVOLIN, V. N., Moscow Engineering-Physics Institute

"Kinetic Energies of Laser Plasma Ions"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol XLII, No 3, 1972, pp 658-661

Abstract: The mass-spectrometric method was used to study the ion composition and distribution of ions with different z with respect to energy in the last stage of dispersion of a substance. A transit time mass-spectrometer with an electrostatic analyzer was used in the experiments. A study was made of the maximum energy of the ions E_{max} of a laser plasma as a function of the radiation flux density in the range of $q \sim 10^8$–10^{11} watts/cm^2. The value of E_{max} was obtained as a function of the ion mass. The domain of weak dependence of $E_{max} = f(q)$ was detected in the 10^8–10^9 watts/cm^2 range. The integral spectrum was determined by the energy distributions of the ions with different charge. Values obtained for q_1, q_2 (the flux densities) and $\gamma_i\alpha$, α_1 ($N \sim q^{\alpha}$ where n is the total number of charged particles and $E_{max} \sim q^{\gamma_i}$) are tabulated for Be, Al, Ti, Cu, Nb and W. For bismuth with a flux density of $10^8 \leq q \leq 10^{11}$ watts/cm^2, no region of weak dependence of $E_{max} = f(q)$ was detected. This

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BYKOVSKIY, YU. A., et al., Zhurnal Tekhnicheskoy Fiziki, Vol XLII, No 3, 1972, pp 658-661

agees with the calculated values of q_1' and q_2' (the boundary values of the radiation flux density range of the gigantic laser pulse in which phase transition conditions exist).

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USSR

UDC 621.315.592

ALEKSANDROV, A.S., YELESIN, V.F., NEVSKIY, P.L.

"Optical And Electrical Properties Of Doped Semiconductors In Strong Electromagnetic Field"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 6(12), 1972, pp 74-82

Abstract: A theoretical investigation of the optical and electrical properties of doped semiconductors found in a strong electromagnetic field is of interest in connection with studies of semiconductor lasers and also in connection with experiments with respect to irradiation of semiconductors by powerful coherent radiation. In the present work, on the basis of a consistent theoretical consideration, the form is found of the absorption line of a weak electromagnetic field and the electrical conductivity of doped semiconductors with a nonequilibrium population. Consideration is given, both in the absence and with the presence of a strong monochromatic wave with a frequency in the region of fundamental absorption. A calculation of the amplification spectrum of a weak electromagnetic field, with impurity scattering taken into account, shows that because of indirect transitions (without pulse conservation) the amplification maximum shifts to the region of smaller frequencies. With the presence of a

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ALEKSANDROV, A. S., et al, Kvantovaya elektronika, No 6(12), pp 74-82

strong monochromatic wave impurity scattering reduces the transparency range which appears because of a gap in the energy spectrum. With some critical concentrations of impurities the transparency range disappears. The electrical conductivity of a semiconductor found in a strong wave field also depends substantially on the ratio between the concentration of impurities and the field intensity. With small concentrations and large intensities the semiconductor conducts itself as a dielectric, regardless of the presence of electrons and holes induced by the strong electromagnetic field. With an increase of the impurity concentration (or with a decrease of the field intensity) the energy gap disappears and the conductivity becomes nonzero. The calculations were made with the aid of the graphic technic of A.A. Abrikosov and L.P. Gor'kov in a ladder approximation, i.e., when the mean free path of the electrons close to the Fermi quasi-level exceeds their wavelength. The authors thank Yu. A. Bykovskiy and V.M. Galitskiy for helpful discussion of the work. 3 fig. 12 ref. Received by editors, 25 Oct 1971.

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USSR

UDC:

YELESIN, V. F. and KOPAYEV, YU. V., Physics Institute imeni P.N. Lebedev of the USSR Academy of Sciences

"The Effect of a Strong Magnetic Field on the Superconducting Properties of Semiconductors"

Leningrad, Fizika Tverdovo Tela, Vol 14, No 3, Mar 1972, pp 669-674

Abstract: The authors study the effect of the intermingling of the valence and conductivity band states under the effect of an electromagnetic wave field on the conductivity of nonequilibrium electrons and holes in the case of a semiconductor model whose extrema of the valence and conductivity bands are at $p=0$. This effect amounts to the existence of a dielectric gap which is proportional to the amplitude of the field and the matrix element of interband transition. The supercondictivity state in this case is possible only if the magnitude of this gap is less than the value of the superconducting gap which was obtained without considering ingermingling. This is analogous to the existence of the exciton insulator phase in a semiconductor when the magnitude of the forbidden band of the latter is less than the binding energy of the exciton. Because of the simultaneous presence of electrons and holes of both dielectric and superconductivity gaps at Fermi quasilevels, the relationship between the temperature of superconducting transition and the magnitude of the superconducting gap at $T=0$ is

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YELESIN, V. F. and KOPAYEV, YU. V., Fizika Tverdovo Tela, Vol 14, No 3, Mar 1972, pp 669-674

different from that for the Bardeen-Cooper-Schrieffer model. From a study of the Meissner effect of such a system, it follows that even at T=0 only a part of the electrons and holes participates in superconductivity. The participating part is proportional to the ratio of the superconducting gap to the full one. In addition, the authors study the effect of a field on the spin structure of electon-hole pairs, while taking into consideration Coulomb's interaction. It is shown that the basic state of these pairs is of the triplet type, while the electron-hole pairing without the field is indifferent with respect to their spin structure. Original article: 35 formulas and eight bibliographic entries.

2/2

USSR UDC: 621.378.385

ASHMARIN, I. I., BYKOVSKIY, Yu. A., DEGTYARENKO, N. N., YELESIN, V. F., LARKIN, A. I., SIPAYLO, I. P., Moscow Physical Engineering Institute

"Pulse Holography Study of Gas Breakdown in Front of a Laser Beam"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 41, No 11, Nov 71, pp 2369-2377

Abstract: The paper is devoted to a study of phenomena which take place in air and in helium at different pressures when the output from a ruby laser is focused on lead, copper, and aluminum targets. The method of pulse holography is used for these purposes. The efficacy of the holographic method for studying these phenomena is demonstrated. It is observed that the axis of symmetry of the beam at atmospheric pressure deviates from the normal to the target in the case of oblique incidence of the laser beam. This effect can be attributed

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ASHMARIN, I. I. et al., Zhurnal Tekhnicheskoy Fiziki, No 11, Nov 71, pp 2369-2377

to localized absorption of the energy of laser emission on the boundary of the beam. It is found that the effect of the laser beam on the probability of gas breakdown in front of the target can be attributed to the ionizing action of ultraviolet radiation. An investigation of the way that the magnitude of the effect depends on the target material and the composition of the ambient gas confirms this hypothesis. The authors thank D. M. Samoylovich and R. V. Ryabov for furnishing the photographic materials and for constructive criticism. Nine figures, one table, bibliography of 14 titles.

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USSR

YELESIN, V. F., Moscow Engineering Physics Institute

"Electron State Density of Highly Doped Semiconductor in Intensive Electromagnetic Wave Field"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 1, Jan 71, pp 267-271

Abstract: For purposes of finding the state density of a highly doped semiconductor in the field of an intensive electromagnetic wave, the article considers a semiconductor with two symmetric bands, obeying a square dispersion law at a temperature equal to zero. The system of units $h = c = m = 1$ is used. Green's function is found in the equivalent of the standard curved band approximation in the presence of a strong field. The electron state density in the conduction band and in the forbidden band is calculated for the case in which the field frequency is greater or less than the forbidden band width. It is shown that the "tail" state density varies significantly with the field. The author thanks YU. A. BYKOVSKIY, V. M. GALITSKIY, V. V. NIKITIN for discussing the work. 1/1

UNCLASSIFIED

1/2 023 PROCESSING DATE--30OCT70

TITLE--NEGATIVE CONDUCTIVITY OF N TYPE SEMICONDUCTORS IN A STRONG MAGNETIC FIELD -U-

AUTHOR--YELESIN, V.F.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 943-4

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--STRONG MAGNETIC FIELD, SEMICONDUCTOR CONDUCTIVITY, COULOMB INTERACTION, ELECTRON SCATTERING, ELECTRON OSCILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1979 STEP NO--UR/0181/70/012/003/0943/0944

CIRC ACCESSION NO--AP0105053

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0105053

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RELAXATION WAS CONSIDERED OF NONEQUIL. ELECTRONS WITH ENERGY EPSILON LESS THAN H OMEGA, WHICH IS ABSENT IN THE CASE OF INTERACTION WITH EQUIL. ELECTRONS IN AN ULTRA QUANTIZED MAGNETIC FIELD (THE CONDITION OF ULTRAQUANTIZABILITY, EPSILON SUBF IS MUCH LESS THAN H OMEGA, IS EASILY FULFILLED IN A PRIME III B PRIME V SEMICONDUCTORS, OMEGA IS THE LARMOR FREQUENCY) AND THE EFFECT OF ABS. NEG. COND. IS POSSIBLE IN N TYPE SEMICONDUCTORS. THE ABSENCE OF RELAXATION IS DETD. BY THE FACT THAT COULOMBIC COLLISIONS OF ELECTRONS WITH AN ENERGY OF EPSILON LESS THAN H OMEGA ARE 1 DIMENSIONAL AND LEAD EITHER TO ZERO ANGLE SCATTERING OR TO EXCHANGE OF IMPULSES ACCORDING TO THE LAWS OF CONSERVATION. INVESTIAGATION OF THE OSCILLATIONS OF ABS. NEG. COND. IS A CONVENIENT METHOD FOR STUDY OF FINE CHARACTERISTICS OF SEMICONDUCTORS, IN PARTICULAR OF THE LANDAU LEVELS. FACILITY: MOSK. INZH. FIZ. INST., MOSCOW, USSR.

UNCLASSIFIED

UDC: 621.373:530.145.6

USSR

GORESLAVSKIY, S. P., YELESIN, V. F.

"Saturation Effect in Semiconductors"

V sb. Vopr. teorii atomn. stolknoveniy (Problems of the Theory of Atomic Collisions --collection of works), Moscow, Atomizdat, 1970, pp 157-167 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7D236)

Translation: The authors calculate the coefficient of absorption of a strong electromagnetic wave with regard to the interaction between electrons and optical phonons. A. K.

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